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## Ontogenetic development and redescription of *Tribolonychus collyerae* (Acari: Tetranychidae)

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### Abstract

*Tribolonychus collyerae* Zhang & Martin is redescribed based on the larva, protonymph, deutonymph and adult male and female specimens from New Zealand. The ontogenetic development of chaetotaxy in *Tribolonychus* and the number and position of solenidia on tibia I are discussed. Patterns of setal addition on leg III and IV from larva to adult in *Tribolonychus* are different from the basic pattern of the Tetranychinae and allied genus *Neonidulus*.

**Key words:** *Tribolonychus*, ontogeny, chaetotaxy, New Zealand

### Introduction

The genus *Tribolonychus* (Acari: Tetranychidae) was erected by Zhang and Martin (2001) for the monotypic species *Tribolonychus collyerae* Zhang & Martin, 2001 collected from *Nothofagus* sp. (Fagaceae) in Lake Rotoroa, New Zealand. This genus is a member of the tribe Tetranychini and is characterized by the following features in adult females: (1) three pairs of prodorsal setae and nine pairs of hysterosomal setae dorsally (outer pair of sacral setae  $f_2$  absent), (2) two pairs of para-anal setae ( $h_{2,3}$ ), (3) two pairs of anal setae ( $ps_{1,2}$ ), (4) three-pronged claw-like empodia, and (5) two adjacent pairs of duplex of setae on tarsus I being distal.

The original description of *T. collyerae* was relatively brief and based on three adult female specimens (Zhang & Martin 2001). Since then, more specimens have been collected, including adult males and all immature stages, allowing a description of all active stages of this species. Beard & Walter (2010) confirmed the taxonomic position of the genus and gave an artificial key to the genera of the tribe Tetranychini with split empodia.

Recently great importance has been attached to understanding the ontogenetic development of mites (e.g. Bayartogtokh & Ermilov 2013; Iglesias *et al* 2012; Seniczak & Seniczak 2011; Beard & Ochoa 2010; Beard & Walter 2010; Zhang & Fan 2004). Most species of the tribe Tetranychini, and indeed of the family Tetranychidae, are known only as adults or incomplete immature stages. The ontogeny of but a few has been described, and yet ontogenetic development data are important for understanding the phylogeny of the group. Herein we provide a modern detailed redescription of adults and the first description of all immature stages of *T. collyerae*, and also include a discussion of the ontogeny of the chaetotaxy of the genus based on available data from related taxa.

### Material and methods

The mite specimens studied in this paper were mounted in Hoyer's medium on slides. The specimens were studied using a Nikon E800 microscope with phase contrast and interference. Line drawings were prepared with the aid of